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US Accelerates Plans for Nuclear Reactor on the Moon Amid Space Race with China

August 5, 2025

Categories: Breaking News



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Tapping into its first major policy shift under acting NASA Administrator and Transportation Secretary Sean Duffy, the US has fast-tracked a plan to deploy a

100—kilowatt nuclear reactor on the lunar surface by 2030, marking a strategic effort to maintain leadership in the intensifying space competition with China and Russia.

According to documents obtained by *Politico*, Duffy's directive mandates NASA to seek proposals from industry within 60 days and appoint a project lead. The plan builds on NASA's earlier Fission Surface Power Project, which has already awarded preliminary contracts to develop designs for a smaller 40—kilowatt reactor intended to power future bases on the Moon and eventually Mars.

Meanwhile, China and Russia have formalised their lunar nuclear ambitions. They've signed a memorandum to build a reactor to power the International Lunar Research Station (ILRS) near the Moon's south pole, with a completion target of 2035–36. The plant is expected to be built autonomously by robotic systems.

The ILRS, backed by both nations and open to more than a dozen partner countries, aims to be a permanent, crewed lunar base by the mid–2030s. It is projected to run on a combination of nuclear energy and large-scale solar arrays. Duffy's push comes amid projected budget cuts to NASA's lunar Gateway orbital station, part of the Artemis programme, which seeks to return US astronauts to the Moon by 2027.

The nuclear directive is intended to ensure America's access to high-powered energy infrastructure on the Moon, preventing competitors from establishing exclusion zones.

While the US is targeting deployment by 2030, China and Russia's timeline places them in a position to establish a reactor-powered station by 2035. NASA's engagement builds on decades of technology development, including SNAP–10A, Kilopower, and the FSP project, which wrapped up its Phase I design phase in 2022 and has moved into deeper testing with support from the Department of Energy (DOE) and industry.

By advancing its reactor timeline, the US aims to assert dominance in civil nuclear space infrastructure and support sustainable lunar exploration. The move underscores recognition that continuous power is essential for long-term human presence beyond Earth, and strategic geopolitical positioning in an evolving second space race.